DOCUMENT RESUME

ED 291 876 CE 049 459

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TITLE Raising Economic Competitiveness with Education.
PUB DATE 7 Dec 87
NOTE 19p.; Paper presented at the American Vocational Association Convention (Las Vegas, NV, December 7, 1987).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Change Strategies; Economic Development; *Educational Change; Educational Objectives; Employment Patterns; Labor Needs; Postsecondary Education; *Program Improvement; Secondary Education; *Vocational Education
IDENTIFIERS *Unfinished Agenda (The)

ABSTRACT

The current school reform movement has been plagued by three false assumptions. The first of these postulates that more academic requirements will strengthen the minds of students, improve their reasoning, prepare them for a rapidly changing economy, and make the U.S. economy more competitive. Although it is true that the workers of the future will probably change occupations more often than now and will thus be better served by an educational system that places increased emphasis on basic skills, the task of increasing the competitiveness of the American work force will require more than education alone. More emphasis must be placed on developing a better match between talent and productivity needs, and on avoiding the pitfalls of allowing the U.S. economy to become dominated by services rather than goods-producing industries. The second assumption, i.e., that the future job market will require much more schooling than does today's labor market, is also flawed. Research on future labor market trends suggests that skill levels will probably remain fairly stable through the 1990s and that, in some cases, technological advances will actually reduce the number of skills required to perform certain jobs. Rather than providing more and higher levels of education, policymakers should strive to develop an educational system that is more flexible and requires more active participation by students. It is also false to assume that vocational education and intellectual development are mutually exclusive functions and that vocational education can be acquired much more efficiently as a separate short-term effort. The call to reform the country's educational system that was made in "The Unfinished Agenda" has had some positive effects, especially in the area of increased efforts to integrate vocational and academic education, and there are definite reasons to be optimistic about the future of America's educational system. (MN)

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RAISING ECONOMIC COMPETITIVENESS WITH EDUCATION

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Charleyne Gilbert asked me to talk about the Unfinished Agenda and what has happened with it. I told her that the agenda was still unfinished and that I would prefer to comment on the vocational education agenda for the year 1995. By that time I think the public may realize that some of the methods presently being used to achieve school reform in the 1980's are incompatible with the goal those methods were supposedly meant to achieve, namely, increasing the competitiveness of our economy by enhancing the capability of our labor force. By then I predict that the pendulum will have shifted once again, in recognition of the fact that requiring more of the same academic courses, without changing the way they are taught, will not have increased the creativity, adaptability, or productivity of our workforce. The test scores will have gone up, but the inventiveness, productivity and technical ingenuity of our workers will not have changed very much. Today I will expand on this point by first critically reviewing three of the key assumptions implicit in the new school reform movement. I will also discuss the role of the home and the school in restoring economic competitiveness. Then I will comment on the Unfinished Agenda and on what it accomplished. Finally, I will forecast the climate for vocational education during the next decade.

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Presented at The American Vocational Association convention, Las Vegas, December 7, 1987.

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I. Assumptions implicit in the school reform movement

Assumption 1. More academic requirements will strengthen the minds of students, improve their reasoning, prepare them for a rapidly changing economy, and make our economy more competitive.

Much of the rationale behind the new school reform movement stems from the international challenge to U.S. industry. America's declining economic competitiveness is attributed to our difficulty in raising the productivity levels of our workers. Labor market projections forecast a rise in the average age of the workforce, a declining number of younger workers, an increasing proportion of the workforce consisting of women, minorities, and immigrants, and a continuing shift to the service sector. Thus, the competitiveness problem promises to worsen unless, as former Secretary of Labor William Brock recently testified before a Congressional committee, steps are taken to "garantee that the American worker of the future will be the best in the world - the most productive, the best educated, the highest skilled, the most flexible, and the most competitive." The image conveyed by his testimony is a future of rapid proliferation of advanced technologies in every job, requiring constant learning and constant adaptation by workers. He also predicts a transition to service occupations, which often consist of smaller firms with higher turnover rates, thus signaling more frequent changes of employers and occupations. Some writers suggest that the best preparation for these frequent changes in the lives of future workers is a broad academic education through high school, and college preparation for those entering the rapidly growing professional, technical, and managerial occupations. Even the least skilled jobs are said to require a command of reading, computing, and thinking that was once necessary only for the professions.

A recent report by the Hudson Institute, (Workforce 2000, June 1987), concluded that if American workers are to have the rising standards of living they enjoyed in the 1950s and 1960s, "students must go to school

longer, study more, and pass more difficult tests covering more advanced subject matter" (p. 117).

Many of the hard talking articles that prescribe more difficult courses for students, imply the old mental muscle theory which postulates that the mind is like a muscle which gets stronger when exposed to painful exercise. Early studies found this theory wanting when difficult subjects, believed to discipline the mind, not only didn t alter students reasoning ability, but often antagonized students to new learning. Anthropologists have also recently found reasoning to be context specific. Learning doesn t automatically transfer from school-like settings to applied settings. Transfer depends on the similarity between the context in which learning occurs and that in which the learning is to be applied. The provision of practical experiences which allow students to see the utility of new skills in real-world contexts is more likely to enhance the application of reasoning skills in students.

Although the addition of academic requirements to increase the competitiveness of the workforce suggests that the public schools are responsible for the problem, competitiveness depends on a lot more than education. Much of the problem must be attributed to factors beyond the scope of the education and training system. The high cost of labor and an unwillingness to live within our means has something to do with our lack of competitiveness. The wide use of drugs and alcohol may be a factor. Another factor may be the type of decisions that are made by our policy makers, owners, and top management. Examples are, decisions to place short term profits and speculation ahead of needs for plant modernization or quality, and the use of compensation and promotion systems that favor managerial over technical personnel.

Competitiveness also requires a better match between talent and productivity needs. For example, too many of our best and brightest students become paper entrepreneurs in law and finance instead of entering more productive fields like engineering and technology. A recent Danziger cartoon (Nov. 24, 1987) expressed this point with a classroom at a graduate school of business. The instructor has written the word PRODUCTION on the blackboard and says, "Now, I know you all want to make money ... but today we re going to discuss making ... things. Actual things. Comments from disturbed members of the class include, Things?! I don t

want to make things! I want to make money! Listen ... let s sue the business school. We could make some money that way ... " Although technology-intensive services can certainly strengthen goods-producing industries, an economy dominated by services could weaken our economic competitiveness. We are not likely to eliminate the U.S. trade deficit by simply providing services for each other.

In his new book, Tales of a New America, Robert Reich argues that too many of our best technologists, scientists and engineers are working for the defense industry which has only limited impact on our commercial competitiveness because their work is secret. Thus defense spending diverts our most talented technologists away from developing commercial applications.

Our nation's ability to compete also depends on the willingness of the nations we trade with to alter their policies to promote cunsumption, and trade with us. In their new book, The High-Flex Society, Choate and Linger describe the "little unfair advantages" used by other nations that have open access to our best research, and jealously guard their own. Our patents, copyrights, trademarks, and other intellectual property rights are flagrantly violated but there is no reciprocity. The U.S. has very limited access to foreign technology, science, and technical information.

Assumption 2. The future job market will require much more schooling than today s labor market.

Although other factors are probably more important than schooling in raising our economic competitiveness, almost every recent labor report calls for more schooling as the top priority. It helps to examine labor market projections to get a better perspective on this issue. Most labor reports stress that the new jobs in the economy will favor the most educated sector of the labor force. But rate of growth misrepresents the absolute number of jobs that will be available. For example, the rate of growth of computer service technicians is much higher than auto mechanics, but the absolute increase in the number of jobs for auto mechanics will be much larger, perhaps six times larger, than for computer service technicians. The large majority of workers in the 1995 labor force are already employed. Through the mid 90 s most jobs will become available as the result of replacement

needs. Occupations with high replacement needs generally include jobs that require only modest amounts of education, such as file clerks, cashiers, and stock handlers. Occupations with relatively few replacement openings such as architects, dentists, and university professors, generally include jobs that require much more education. The greatest absolute number of jobs will still be in services, trade, and manufacturing sectors.

Spenner (Summer, 1985), reviewed the literature on upgrading and downgrading of occupations and concluded that there will be aggregate stability in skill requirements. Rather than a dramatic change in skill requirements, the up and down changes seem to offset one another, leaving skill levels fairly stable. Furthermore, the impact of new technologies on the skill demands of workers is not always positive. Technology often reduces the skills that are required, if not eliminating them altogether (Levin and Rumberger 1983). The large core of entry-level jobs has not changed very much and is not likely to disappear in the near future. The high technology jobs that have changed most rapidly involve a relatively minor share of the total labor force.

I do not mean to imply by these comments that we do not have to improve the quality and effectiveness of education, but I just can t find the dramatic changes in the projected supply of jobs that would trigger such alarm over the need for more schooling. We already educate a larger share of our population than most countries and many of our college graduates are working in jobs that do not require the baccalaureate.

The projected changes in the composition of the labor force also contribute to the demand for more schooling. The projections that Blacks and Hispanics will account for an increasing share of workers raises a warning signal because they are disproportionately represented among those with less education. Employers may have to rely more on the heretofore neglected special need populations for their labor pool. This suggests that a greater effort should be made to prepare these students. But it may take more than school reforms to fully integrate Blacks and Hispanics into the workforce. A persistent problem in preparing the Nation s labor force is the inability of the school system, by itself, to rectify the social inequities that place certain segments of the population at risk from the very outset of their development. The disadvantages of these special populations are quite stable throughout the school-to-work transition period, as evidenced in test

scores, school performance, numbers who drop out of school, difficulty in finding and keeping a job, and productivity levels. The question remains, will closing the education gap for minority populations overcome the present difference in their levels of participation in the labor force, or will they remain at the rear of the labor queue, even as they close the gap in schooling?

As ever increasing numbers of minority students are completing high school, more of the general population is obtaining the associate and baccalaureate degrees. The school reform movement is now moving upward into the Community Colleges, putting more emphasis on the transfer function, and amplifying the distinction between the transfer and vocational curricula. We may also be moving away from the comprehensive curriculum at the Community College level, repeating the changes that were made at the secondary level a few years ago. It seems the baccalaureate is now intended to be the new standard level of schooling for the majority of the population. I wonder if that will increase our economic competitiveness, or simply drive up the wage level and move the site for vocational education to higher levels of schooling to coincide with the new point of job entry? As the majority of our youth obtain a college degree, its value will be diminished for all except those who do not have one. Perhaps the postgraduate degree will be the new selection criterion for sorting people in the job queue. Where does it end? The difference between the ages for job entry and retirement gets smaller with each successive generation. I believe we have reached the limit on how long we can keep people off the labor market. As the declining size of the youth cohort creates a scarce labor supply, it may become impractical to continue to lengthen the period of schooling. Rising wages for entry level workers will reduce the rate of financial return from prolonged college attendance.

Articles that call for more schooling to improve the competitiveness of our workforce typically refer not only to the need for basic skills, but also to the need for more flexibility, adaptiveness, creativity, and improvisational skills. They also mention social skills, dependability, and cooperative attitudes that improve interpersonal harmony and teamwork; they want it all. This is a tall order for the schools, and the achievement of these goals depends more on the nature of the instructional process than the length of schooling. Besides, when reviewing the effects of schooling, policy makers

seldom look at the flexibility or cooperativeness of students, only at their achievement scores on multiple choice tests. One reason many of our graduates do not have these characteristics may be due to the passive, rote competitive, individualistic, teacher-talk, student-listen instructional aproaches that are so dominant in our schools and colleges. Some business leaders are beginning to wonder whether it is possible for these public institutions to change, and in the future the larger firms may be taking an increasingly more active role in the education and training of their own workers. Corporate investment in training is already reported to exceed 30 billion per year.

Assumption 3. Vocational education and intellectual development are mutually exclusive functions, and vocational education can be done much more efficiently as a separate short term effort.

Many writers have argued that we can increase the competitiveness of our workforce by a more efficient system of preparing youth for work. Some policy makers prefer a centrally controlled system of training, patterned after the orderly European models, with a more coherent sequence of training that leads directly to employment in the occupation for which training was provided. The focus on efficiency has been moving toward greater articulation among training programs, the elimination of duplication, and the merging of programs. Efficiency considerations have also promoted the regionalization of vocational education. It is cheaper to provide such services for a wide area instead of duplicating expensive equipment in each school. Demands for efficiency have also increased accountability requirements. Job placement and earnings have become the measure of program effectiveness. Some advocates of greater efficiency have even recommended that the vocational education function be taken out of the monopolistic hands of public schools and community colleges. They claim that privatization of job training would allow the efficiencies of competitive forces of the free market to operate, and would also free the schools to concentrate on that which they do best, provide academic preparation for the university. Indeed, proprietary school enrollments have already increased by approximately 450 percent in the last five years.

The question that must be addressed in the midst of the present rush toward greater levels of efficiency, is whether there are tradeoffs with quality and equity that ought to be weighed against present directions. The long term results of the efficiency movement may be to widen the separation of vocational and liberal arts and to diminish the comprehensiveness of the school system. Students will be required to make a clear choice between an academic or vocational education, and with their differential status, we can expect a progressive decline of enrollments in the latter.

Contrary to the assumption that vocational education is a short term affair, I believe the process takes a very long time. The process begins long before the workers enter kindergarten, and continues throughout their lives. I believe most short term training efforts to build flexibility and cooperative skills in workers have little impact. Let me illustrate this point with a description of my recent experiences and problems as one of the instructors attempting to teach participative management skills to blue collar General Motors auto workers. The key to the success of some of our economic competitors has been their ability to make better use of the capabilities of their workers. They have designed integrated production systems that use participative management procedures, have guaranteed employment security for workers, and have achieved greater cooperation and teamwork between management, professionals, technicians, and shop-floor workers.

The GM management decided to train the assembly line workers at the Van Nuys, California, plant to use a 'team concept' that gives workers more authority and responsibility for the quality of their product. Twenty training modules on various 'people skills', e.g., problem solving, motivation, planning, coping with change, time and stress management, group dynamics, listening skills, conflict resolution, meeting skills, etc., were first presented to managers and team leaders. Then 4,500 assembly line employees received the training from twenty six instructors who rotated from one classroom to another in an eight-hour teaching day for three weeks in a vacant Junior High School.

The GM plan was to raise productivity by adopting a production method of organizing workers in small teams with more responsibility. All job classification distinctions were eliminated. All team members were

expected to learn all the jobs for rotation purposes. Teams were given the authority to stop the assembly line to solve quality problems if necessary. Team members would discuss the problem, plan solutions, solve their own problems, and most important, would hold one another accountable for their performance.

All workers were required to show up for classes in order to be paid. At first, some arrived in class wearing Walkman headsets. Each class contained a small cadre of dissenters who had voted against the new plan, were opposed to the training, and tried to disrupt the class. One obvious mistake was the choice of a Junior High School campus as the training site. It elicited painful connotations for this population - most of whose members were not your better students and had experienced much condescension during that period of their lives.

My first class was a total disaster. Some of the workers were playing catch with a ball and yelling across the room and asking humorous questions to disrupt the class. At the point of exhaustion, I asked them to critique my instruction. They were surprisingly candid. In subsequent classes I devoted more class time to group activities, lightened my topics with some jokes, and spent more time talking about their grievances. These discussions always returned to one central issue, their lack of trust in the GM management. Unfortunately, deep-seated mistrust is not amenable to quick solutions. The entire constellation of attitudes and emotional behavior that was exhibited by these workers during these discussions seemed very distant and removed from the rational and controlled types of behavior we were trying to teach. These attitudes had obviously taken years to develop and weren't going to be changed with a few weeks of training.

The main difficulty in teaching these workers was the conflict between competing goals of the team concept and union loyalty. The union has always been an unquestioning advocate of the worker, right or wrong. But the new team concept substituted cooperation, peer criticism, and mutual accountability for the old system of individualism, live-and-let-live, look-the-other-way, work patterns. The workers saw the new team approach as a union busting scheme because it substitutes an accountability system of worker vs worker for the old adversarial system of worker vs management.

The classroom behavior of these workers led me to be skeptical about the future success of the team approach in that plant. For example, workers were extremely reluctant to hold the few dissidents in the class accountable for their disruptive actions. When a group of dissidents started a card game during the break and did not return to class, other classmates said, let them stay out there; they don t want to be in class anyway. I discussed the implications of that approach for similar transgressions on the assembly line and what it meant for productivity. But they were unwilling to accept responsibility for the consequences of the behavior of their delinquent team mates and refused to put pressure on them. It was very difficult to convince them that their long-term collective self interest sometimes demands of them the unpleasant task of holding their fellow worker responsible. I also noticed that when I visited the teams working on group projects, workers who had not been participating in their team s project before I arrived, often attempted to appear as if they had been involved. It took an outside authority to prompt this temporary display of effort; the team itself was unable or unwilling to command that participation. In discussing this with them I concluded that some of their reluctance to adopt the team concept was because they feared that it would be more difficult to protect themselves from their peers than from a distant management.

I visited the plant during the week after the instruction to observe whether there was any evidence of any team work on the job. I saw little evidence of any change other than the slowing of the assembly line. Perhaps with the long history of distrust and suspicion, it will simply take a lot more time to change the adversarial roles of labor and management in order to compete in world markets.

There is no question that U.S. car manufacturers must change their production methods if they are to regain their competitive edge. But there is an enormous difference between participative approaches that are imposed from above under threat of plant closure using short-term implementation strategies, and those that are built over a long period on a foundation of trust, caring, and organizational commitment to the workers. In addition, long before the workers were employed, they should have had ample opportunities in school and at home to develop team skills and flexibility in the normal process of communicating and solving challenging problems.

II. Role of the home and the school in restoring econonomic competitiveness

The development of cooperativeness, flexibility, autonomy, or any of those valued personal qualities, requires a long history of positive experiences that contribute to one s self esteem. No short term training session is likely to alter these basic dimensions of a person. Differences in family backgrounds make a big difference in children and determines how much they will benefit from school programs. Quality parenting that is supportive, trusting, accepting, and loving, that conveys a sense of the children s importance and the expectation of success in whatever they attempt, is a basic prerequisite to increasing the future competitiveness of our workforce. We may have to spend a greater share of our budget and attention on the earlier end of the age continuum if we are serious about improving the quality of our workforce during the next generation. Investments in child care, pregnancy prevention, welfare reform, big brother programs, and other interventions may be necessary to address our competitiveness problem. Early education in the home and parent involvement in the education of their children has a heavy influence on the effectiveness of the schools

The success of families in raising a more competitive workforce for the future may depend on how they are treated at work. The structure of work affects the family in many ways. Hoffman (1986) has reviewed the research on this topic and has found that work influences family life not only by its material contributions to family well-being, but also in many other ways. Work affects ideas about desired adult qualities and thus shapes child-rearing patterns. Child rearing patterns of fathers employed in an entrepreneurial setting emphasize independence, responsibility and self-control, whereas the child rearing patterns of fathers in bureaucratic jobs emphasize interpersonal skills and getting along with others. Blue-collar parents are more likely to value obedience and conformity, while white-collar parents were more likely to stress achievement, independence, and self-reliance to their children. Treating people better at work may improve the quality of parenting.

Families can't increase the competitiveness of the workforce without help from the schools. The schools must do their part to improve the self esteem of young people. The schools can motivate students to make creative use of their talents. They can convince students that they can, with sustained effort, acquire skills that will enable them to achieve interesting and challenging goals. Schools can also help students to trust that their performance will result in valued outcomes. Recent research on motivation (Csikszentmihalyi, 1975, 1982) reveals that when students develop high skill levels in a particular area and use those skills in mastering activities that are highly challenging, they experience a high intrinsic motivational state called "flow," characterised by a strong feeling of enjoyment of the activity, a sense of control, and focused attention. This flow state emerges when the perceived challenge fully uses the skills the person feels he possesses; that is when there is a perfect match between the demands of the situation and the capacity of the individual. The flow state motivates sustained involvement in an area of activity, and promotes feelings of high levels of self esteem and efficiency. When students are in the flow state they do not feel anxious, bored, or apathetic; they are at their peak.

Most school programs can probably be used to put students into the flow state, but those subjects like sports, the performing arts, and vocational subjects, that emphasize concrete skills, may be more amenable for that purpose. For example, I saw evidence of students being in the flow state at Rowland High School in Southern California. They have an animation program in which students were constructing miniature sets by duplicating buildings from photographs and using computer graphics to produce an animated film which they were planning to enter in an international competition. They were so involved and focused on what they were doing that they hardly noticed me entering their classroom. When I asked them to explain what they were doing they explained the technical principles, illustrated their points by manipulating their equipment, and showed great enthusiasm in their voices and facial expressions. Similar flow experiences have been reported by a group of El Camino high school students in Southern California who were learning to work together in operating and maintaining a large sailing vessel at sea. I imagine the low budget high school "techies" who went up against twenty-four corporate race teams from a half dozen

countries in the recent world solar car race across Australia, also got into the flow state.

Students need to have the sense that they are working on important and challenging tasks to keep the motivational fires burning. They also need to be exposed to rigorous academic studies that require them to think about broad social issues. One way to improve the motivational value of the curriculum without sacrificing its intellectual demands may be to develop interdisciplinary programs that integrate liberal arts and vocational courses. Incentives could be offered for academic and vocational teachers to work together to help students make the connection between theory and application. The applied portions of new "bridging" courses might be taught by the more applied person, and the theoretical portions by the more generic person. Such team teaching arrangements would begin to reduce the compartmentalism and separation of liberal arts and vocational studies in our high schools and community colleges. In the minds of students the purposes of vocational and liberal arts courses may not be clearly distinguishable anyway. In a recent national study of community colleges, Palmer (1987) found that many students take liberal arts courses to pursue job-related goals, and many take vocational courses to prepare themselves for transfer to baccalaureate programs. Vocational courses serve students of all abilities, and backgrounds. Contrary to the popular stereotype, his data showed that the vocational curriculum did not serve as a separate track for a distinct subset of students.

The current emphasis on strengthening the educational function of vocational courses is part of the school reform movement that got started during the early 80's. Certainly it is important that students understand the fundamental principles behind what they are doing. They must know why as well as how things work. They must have a broad based education and develop many skills and learn about many subjects. They must also communicate clearly. But, academic skills and vocational skills are not mutually exclusive; both are necessary. In using the vocational curriculum to reinforce the basic skills we must be careful not to lose the heart of the present vocational program. Students in vocational programs should have a wide variety of laboratory projects, exploratory work experiences, and have access to challenging forms of cooperative education. They should also be active in vocational student organizations which offer them opportunities

for leadership and group responsibility. If vocational education becomes another passive cognitive discipline, e.g., a watered down version of economics, without its active work-related character, its educational quality will have been lost.

III. The Unfinished Agenda

We stated in the Unfinished Agenda that "All students, whether college bound or not, need a mix of both academic and vocational courses and enough elective options to match their interests and learning styles." We called for the integration of academic and vocational instruction in secondary schools. We felt that the traditional passive cognitive model of instruction does not work for everyone. The real strength of vocational education is that it provides an alternative to the passive cognitive model. Its active instructional process helps to motivate students. Vocational education offers students a chance to make things happen. It is by nature a process of learning by doing. Students have to solve practical problems when they create products and provide services. It is a cooperative process in which students work together, helping each other on group projects. By solving practical problems and applying what they learn in real-world contexts, students develop problem solving and reasoning skills. In short, our Commission focused on the instructional process and its effect on the personal growth of students.

What has been the impact of the Unfinished Agenda? On the positive side, many states have made efforts to further integrate vocational education into the high school curriculum by insuring that vocational courses complement the academic core and reinforce basic problem solving skills. There have also been attempts to infuse career education into academic courses by emphasizing their practical applications. It is not clear, however, that such changes are attributable to our report. They may have happened anyway. Commission reports don't effect change so much as they are affected by it. Commissions are formed in response to growing public concerns which already have their own momentum. For example, the recent spate of commission reports addressing the perceived decline in the quality of schooling grew out of an existing public concern over the nation's declining economic competitiveness. The climate of opinion in the country was well prepared for any appeal to increase standards, give more

homework, and require more academic courses. The Unfinished Agenda was a reaction to some of these reports and sought to achieve a more balanced perspective on high school reform.

Because of the potential for recent increases in academic requirements to close opportunities for students to take applied elective courses, at least 14 states have made some provision for cross credits for vocational courses. One reason for the policy in these states was to avert the potential for new course requirements to increase dropout rates. But another consideration was the concern that needs for vocational and higher order thinking and problem solving skills would be ignored. Of course some critics of vocational education feel that it does not have a legitimate place in the high school curriculum, insisting that a broad liberal education is the best preparation for all students. Such critics may come from strictly academic backgrounds, and probably have never experienced, and will not comprehend, the value of vocational education.

The Commission s view was that access to both academic and vocational courses is necessary. The academic programs should be available to non college bound students who need to upgrade specific academic skills to enhance their employability. And, vocational programs should be available to college bound students who need to see how abstract concepts in mathematics, science, and other academic disciplines are applied in practical settings. It is especially important that students who are going to continue their higher education in the sciences be given incentives to acquire mechanical and technical skills that are not generally taught as part of the academic curriculum, but are taught in vocational courses. Save us from those future surgeons and engineers who do not learn early-on to use their hands, and solve problems in applied settings.

On the negative side, during the past four years since the new academic requirements have been in place, enrollments in vocational education at the high school level have seriously declined. In the last four years vocational education enrollments in California schools have dropped about 30 percent. This is not an acceptable trend and special action is needed to begin to turn it around. The need for some kind of vocational preparation of youth will not disappear. The question is not whether we should prepare high school youth for work, but how. The answer to this question will have important future consequences.

IV. The 1995 forecast for vocational education

I think there is room for some optimism in the demographic projections for 1995 which suggest that the pendulum will eventually swing back to a position that places greater emphasis on vocational education. The real challenge to the inflation of credentialism in the next decade will come from the shortage of high status positions. First, a college degree no longer guarantees success in the job market. In the past decade the growth in the number of professional, technical, and managerial jobs did not absorb the much larger supply of college graduates, many of whom had to accept jobs that did not require a degree. The oversupply of college graduates is expected to continue through the next decade. Today, only a quarter of all occupations require a college degree. The value of investing in costly forms of long education may have to be reexamined because during the next decade most jobs will become available from replacement needs, generally offer low pay and status, and have modest training requirements.

A second cause for optimism is the dearth of young workers. During the rapid growth period when the baby boomers entered the labor market, employers could be more selective with a surplus labor supply and could raise their credentialing requirements. Now, with slowing population and labor force growth, the market for young workers could tighten. The increased demand for young workers, coupled with the shift to service jobs which are more likely to be found in small businesses which can't afford to do their own training, may increase the demand for vocational education in high schools and community colleges. In addition, millions of workers displaced by advancing technology may be seeking training. Worker training will be more in demand as employers are forced to reach further down the labor queue for their supply of workers, and are no longer able to simply cream off the most employable applicants from the front of the line. Provided that this situation doesn't prompt employers to export more jobs overseas, it may improve the employment chances for minorities, who will be a growing share of the workforce. There may be a growing demand by employers for public investment in education and training.

A third cause for optimism is the possibility that a more mature workforce may be more productive due to its greater experience, stability,

and reliability. Greater productivity may create new job opportunities. The increase in the number of middle-aged workers, however, will increase the salary bill and that may offset the expected gains in their productivity. In response, companies may alter traditional seniority systems and no longer grant higher pay to older workers. That would prompt more older employees to seek second careers, or to start their own businesses. As more of the baby boomers are squeezed out of narrowing promotional pyramids at larger firms they are likely to seek training for alternative employment.

While there are some signs that during the next decade the pendulum may swing part way back toward a renewed appreciation of the value of vocational education, unless active steps are taken to improve the quality of existing programs, the new demands may be satisfied by alternative institutions. As I have written elsewhere, (Silberman, 1986), I think we can improve the quality of existing programs by redesigning them to appeal to a wider range of students, by actively recruiting their teachers from a broader pipeline of talented workers, and by raising the quality of the learning experiences. I believe the quality of the learning experiences would be improved if we stressed understanding of the principles of technology underlying the skills students are learning, and if we stressed active participation rather than passive listening. Quality learning experiences challenge students with practical problems whose solutions will convince them that they are competent and able to exercise control over their environment. Students must learn to work together in cooperative task-oriented teams in which they are required to communicate, make decisions, plan, and help each other create a variety of products and services that give them pleasure and recognition. At its best, vocational education blurs the distinction between work and play.

With that kind of education we would be moving toward completing the unfinished agenda. We would be helping people to feel better about themselves. We would be aiming toward a renewal of the work ethic. We would be reestablishing the popularity of the old do-it-yourself technical culture that propelled this nation to the economic forefront in transportation and communications during the early part of this century. We also have to restructure the nature of work itself so that one doesn t see the bumper stickers that I saw on the GM workers' cars, like, "The worst day fishing is better than the best day working," and, "I'm in no hurry; I'm going to work.

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